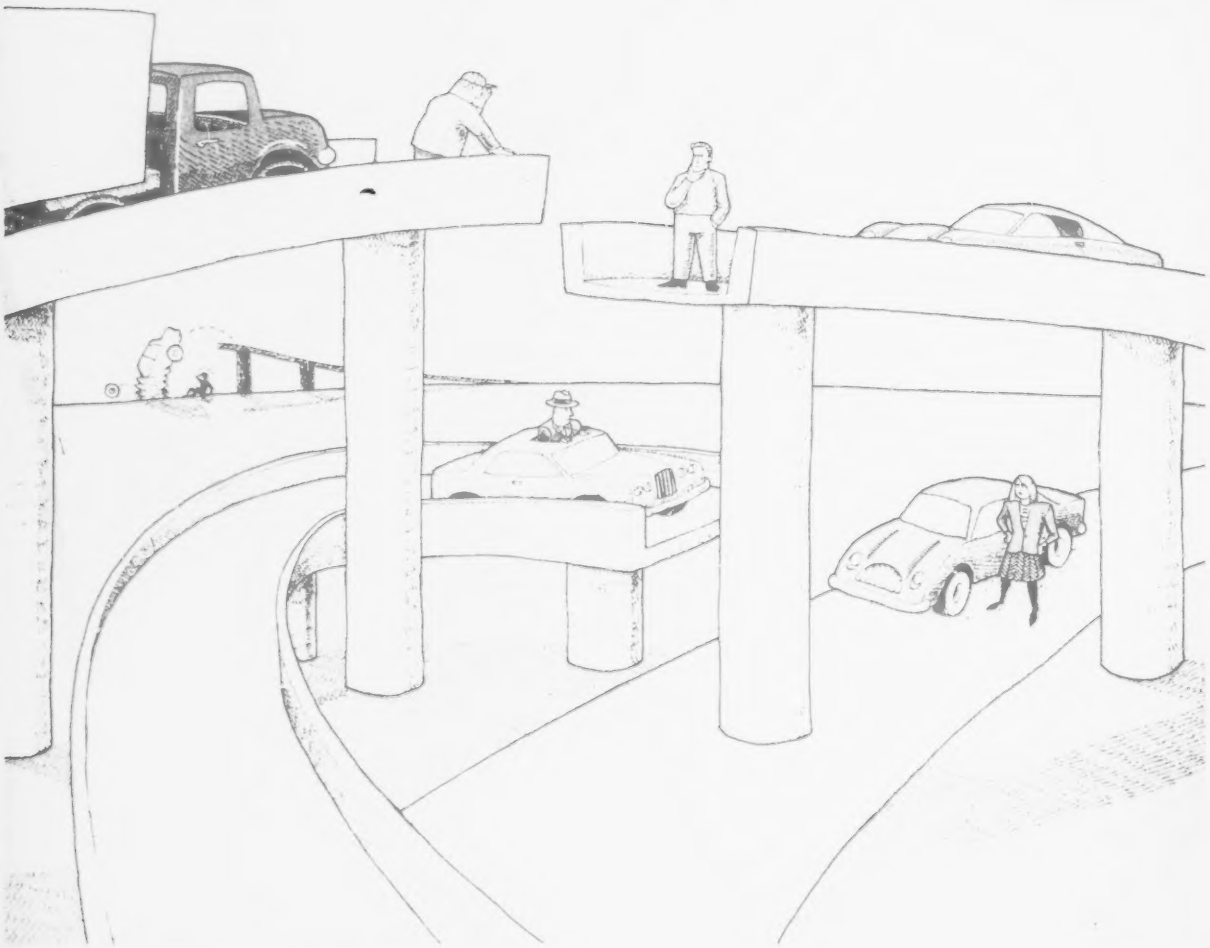
C4225-3
5/13/89

Telephony

AN INTERTEC PUBLICATION MAY 1, 1989 INTEGRATING VOICE & DATA COMMUNICATIONS $3



HOW DO YOU MANAGE THE MULTILEVEL NETWORK?

That is the latest dilemma facing both users and equipment vendors

PUBLISHERS PLAN TO FIGHT MFJ BILL

ANPA wants to kill legislation that would allow RHCs into info services

BELL REFUND ORDER LEFT STANDING

The Supreme Court refuses to hear a 1978 case involving $101 million

MONDAY, MAY 1, 1989 Volume 216, No. 18

Telephony

INTEGRATING VOICE & DATA COMMUNICATIONS

What good is a spanking new, red Corvette if the local highway system is so unplanned that you can't get where you want to go? Users and vendors aren't dazzled so much by technology anymore: They need network management for their operations systems. Cover art by Jim Colao

DEPARTMENTS

62 ADVERTISER'S INDEX

6 IN MY OPINION

24 MEETINGS

64 MOVING AROUND INDUSTRY

44 NEW PRODUCTS AND SERVICES

42 THE WAY WE WERE

NEWS OF THE WEEK

10 **ANPA VOWS TO OPPOSE MFJ LEGISLATION**
Publishers plan to launch a major lobbying effort to kill legislation that would allow the Bell regional holding companies into information services

10 **BELL SYSTEM REFUND ORDER LEFT STANDING**
The Supreme Court refuses to hear a 1978 case involving a $101 million refund the FCC ordered the Bell System to make

11 **LACK OF TRUST HURTS ONA PROGRESS**
A new report says the lack of cooperation among competing interests may prevent Open Network Architecture from producing significant gains for anyone

20 **ISDN EQUIPMENT ENTERS SECOND GENERATION**
Vendors unveil second-generation desktop products that make use of ISDN basic rate interface capabilities

FEATURES

26 **INCENTIVE REGULATION: HIGH PRIORITY FOR LECs**
By David L. Wenner. British Telecom has bathed itself in incentive regulation waters. Will its experience help keep U.S. local exchange carriers afloat in the turbulent sea of price caps?

34 **MANAGING THE MULTILEVEL NETWORK**
By Stephen Fleming and Joel E. Jakubson. The sparkle has gone out of new technology for many users and vendors. Their more immediate concern is managing that technology with existing and future operations systems

TELEPHONY (ISSN 0040-2664) is published weekly except semi-weekly the first week in July by Telephony Division, Intertec Publishing Corp., 55 E. Jackson Blvd., Chicago, IL 60604. Postmaster: Please send address changes to Telephony Subscription Dept. Intertec Publishing Corp., P.O. Box 12946, Overland Park, KS 66212. Second class postage paid at Chicago, IL, and at additional mailing offices. Single copies (payable in advance) U.S. $3.00 ea. Outside U.S. add $1.00 ea. Subscriptions: $36 one year. Outside U.S. $61 per year. Subscription rates apply to employees of operating telephone companies; telephone consultants; contractors; interconnect companies; specialized common carriers; military; government; associations; private communications users; schools; libraries. Change of address: Include old address as well as new address. Attach issue label if possible. Allow 4 weeks for change to become effective. Copyright 1989 by Telephony Division, Intertec Publishing Corp. All rights reserved. Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Telephony for libraries and other users registered with the Copyright Clearance Center (CCC) provided that the fee of $1.50 per page is paid directly to CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to publisher.

On Jan. 22, 1988, the U.S. Court of Appeals in Washington threw out the FCC's authority to order carriers to make refunds when they earn more than their FCC-prescribed rates of return *(Telephony, Jan. 25, page 3)*. In that order, the appeals court said that, while the FCC had the authority to order refunds, it found fault with the way the refund rules were structured. It said that the current refund rules—adopted in 1985—are inconsistent with stated commission goals and that the rules seem "to guarantee the regulated company an economic loss."

Now that the Supreme Court has left the FCC's basic refund authority intact, the agency is expected to work on its refund rules to bring them into line with the appeals court ruling. It is also a safe bet that those refund rules will face challenges. T

OVERALL ENHANCED DATA SERVICE MARKET

Market segment	1988 Sales ($ million)	1988 Market share
Vertical and processing	4800	44.0%
Credit	1600	14.6%
Financial	1400	12.7%
VAN services	800	7.9%
Academic/scientific	450	4.1%
Government	350	3.1%
News	350	3.1%
Transactional	200	1.7%
Consumer videotex	150	1.4%
Other	800	7.4%
Total	10,900	100.0%

Source: the Yankee Group

Cooperation needed for ONA progress

Paul Travis, Executive News Editor

The lack of trust and cooperation among competing interests—Bell regional holding companies, enhanced service providers and end users—may prevent Open Network Architecture from producing significant short-term gains for any of the market participants.

ONA "is unlikely to prove broadly successful until advanced services become the staple product—and that will not occur until nearly 1995," according to a new report called "Leveraging ONA" from Yankee Group, a Boston consulting firm.

ESPs "remain fearful—to the point of phobia—of RHC ONA intentions," the report said. Users see "brave new market opportunities," but are worried about RHC entry into some of their traditional markets via enhanced services. And most RHCs "resist ESP and end-user requests rather than trying to find common ground on which to build a successful ONA foundation."

ONA is a plan by the Federal Communications Commission to open up local networks and to provide equal access to all parties to unbundled local network service elements. It is designed to allow the RHCs to enter the enhanced services market, while providing safeguards for competing ESPs.

The FCC gave partial approval to the first ONA filings by the RHCs, but asked for some revisions. The new ONA filings are scheduled for this month.

The ONA that emerges later this year "will not mandate any further unbundling, will not be open per se, and will not be structured around any formal architecture. Moreover, the individual ONA services most in demand are likely to be the last and least implemented," the report predicted.

While criticizing much of the RHCs' ONA effort, the report singled out Nynex and Ameritech for leading the way "in providing far-reaching ONA compliance. While Nynex offered a large basic service element menu, Ameritech proposed cost-based pricing, extensive federal and state tariffing. Ameritech also allowed ESPs to maintain existing services and to use BSEs with those services.

Based on research and interviews with the RHCs, ESPs, users and regulators, the report said most of the major participants "are taking antagonistic or apathetic stances" and said "this stand-offish behavior increasingly will be self-defeating. ONA begs for participants who cooperate in the belief that, in the end, they will be better off with smaller pieces of a dynamically expanding pie than in larger pieces of an underdeveloped pie."

Yankee Group said the overall enhanced data services market hit $10.9 billion in 1988, with less than 1% coming from the consumer market (see chart above).

The report estimated the business information services market could grow to $26.8 billion by 1993.

However, the RHCs will be unable to grab a significant piece of these existing markets through ONA unless they provide key services demanded by ESPs, such as collocation, more unbundled network elements and the addition of integrated services digital network-like basic service elements to the ONA menu, the report predicted.

In addition, the report said the RHCs are missing an opportunity to boost their core business—local network traffic—in their eagerness to get into the high-profit, enhanced services market.

"Most RHCs do not talk much about ONA increasing local traffic via demand for third-party ESP services; about keeping end-user traffic on the local public network through element unbundling and collocation; or about making easy money by acting, through collocation, as network landlord to a thriving third-party information content business (and to network 'tenant' bypassers).

"Curiously, however, these are ways the RHCs could leverage ONA immediately and substantially, rather than leav-

continued on page 12

ing a less robust ONA to leverage ultimate benefits only in the future through the lifting of regulatory restraints," the report said.

Noting that the "ultimate promise of ONA lies in the potential for deregulation," the report said the RHCs could hurt their chances for elimination of Modified Final Judgment restrictions if U.S. District Judge Harold Greene is not convinced the RHCs have opened their networks and ONA is working in the market place.

"By complying minimally in reaction to what they consider unfair regulatory treatment, RHCs may postpone regulatory relief instead of speeding it," the report said.

The RHCs face two options, the Yankee Group report said. One option for the RHCs is to develop gateways, mine third-party ESPs to stimulate market demand, and reap a 15% to 35% share of information dollars.

The other option is for the RHCs to win regulatory freedom and individually develop mammoth information processing infrastructures to sell transport, timesharing, information databases and other services. "But the RHCs risk creating massive infrastructures without any ready customer base."

In the long run, the report said there will be broad availability of ISDN-like BSEs by 1995 "and it may become crucial to RHCs that ONA service menus are broadened quickly. Potentially, for example, interexchange carrier control of the enhanced data services market could become so entrenched by 1995 that subsequent significant RHC participation will be all but precluded."

The report concluded that the "success of ONA ultimately will hinge upon all market participants finding common ground. . . . There will be no winners unless suppliers work together to provide a universal community of services." T

STAINLESS STEEL BELT CLIP
POLARITY TEST BUTTON
(*) AND (#) BUTTONS
Generate DTMF signals for special PABX, CO, and computer signalling functions.
MODE SELECTION SWITCH
Selects tone or pulse dialing.
REGISTER RECALL/HOOK FLASH BUTTON
Produces a timed, break of 270 milliseconds.
NON-SLIP SHOULDER PAD
LED POLARITY INDICATOR
Provides visual indication of correct or incorrect line polarity.
LAST NUMBER REDIAL
23 digits-in tone or pulse.
MUTE BUTTON
Eliminates sidetone.
ON/OFF/MONITOR SWITCH
ON position establishes an OFF-hook condition for dialing and talking. OFF position creates an ON-hook condition with the ringer connected to the line. MONITOR allows line monitoring without disruption.

WE'RE SO SURE OUR TEST SETS WILL OUTPERFORM ALL OTHERS–WE GIVE YOU A 1-YEAR WARRANTY.

And it's UL Listed for safe operation.
Quality. That's what you get with our HD-3 Lineman's Test Set. Made by a company with more than 60 years of telecom manufacturing experience.
You'll see why we offer a full one-year warranty when you compare our test set with others, many of which offer only 90 days protection.
The strong, safe construction of the HD-3 complies with the UL Standard for Safety for Test Equipment.
The HD-3 has a ringer to indicate incoming calls and an RJ-11 jack is built in for a quick change of cord sets.
And its rugged good-looking design is impact, shock and moisture resistant; making it the best all-around, all-weather test set you can buy. Great value. Low price.

For more information, call toll free:
800-356-4940.

HD Telecom, Inc.
407 East Main Street
Port Jefferson, NY 11777
FAX: 516-473-7304

Circle No. 4 on Reader Service Card

AT&T wants into electronic publishing market

Charles Mason
Washington Editor

Since the divestiture agreement in 1982, AT&T has been prohibited from engaging in electronic publishing. Under the terms of divestiture, however, that prohibition is scheduled to expire in August, and AT&T says it wants to make sure that happens.

The company has gone to U.S. District Judge Harold Greene, asking that he allow the prohibition to die on schedule. Greene could continue the ban if he feels entry by AT&T would endanger competition. Based on his previous statements, however, it is believed Greene will not extend the ban.

AT&T has not disclosed what it might do if the ban is lifted. But AT&T has told Greene that competition has intensified and it should be allowed to participate in the industry.

In its April 21 filing with the judge, AT&T said that the electronic publishing business is now heavily populated with

continued on page 14

Incentive regulation should be a high priority for LECs

British Telecom has bathed itself in incentive regulation waters. Will its experience help keep U.S. local exchange carriers afloat in the turbulent sea of price caps?

DAVID L. WENNER

More than four years ago the U.K. launched the world's first large-scale experiment in incentive regulation: The government gave British Telecom the opportunity to price flexibly and earn more than its cost of capital—if it could do so while reducing real prices.

Although the results have been mixed, in the past six months the experiment has begun to look successful.

Profits have increased every year and stock performance has recently outpaced the market. At the same time, real prices have declined 12% overall and service quality has now improved over historical levels.

With experiments now under way in at least 15 states, lessons learned in the U.K. may help U.S. local exchange carriers face the challenge of creating value for customers and shareholders under incentive regulation (Table 1).

The Birth of BT

In the years before incentive regulation, BT was a sleepy agency under the U.K.'s Department of Treasury. Service was poor and the network antiquated. Government policies forced BT to generate cash to support other public programs, leaving the agency with a network consisting largely of Strowger step-by-step equipment. In fact, some of its central offices were 50 years old.

As a result, BT failed to realize the improved capabilities and dramatically lower costs U.S. LECs were beginning to enjoy. LECs in the U.S. moved to analog exchanges in the 1960s and 1970s and now were rapidly converting to digital exchanges. While BT's access lines per employee stood at 94 in 1984, the figure for the average Bell regional holding company was 150—and climbing.

BT's behavior began to change markedly in the early 1980s. The government—under Prime Minister Margaret Thatcher—announced its intention to convert BT, a bureaucracy of some 240,000 people, into a privatized organization, competitively viable in the U.K. and world markets. BT then launched an ambitious modernization and cost-reduction program.

In late 1984 BT was privatized and regulated, under a price-cap plan, by the U.K.'s Office of Telecommunications. The cap for a "basket" of services (line rentals and local and long-distance call-

continued on page 28

TABLE 1 MAJOR LEC INCENTIVE REGULATION PROGRAMS*

State	Company	Services covered	Duration of program (years)	LEC concessions (millions)	Price promise	Profitability limits	Profit sharing
Alabama	South Central Bell	All	5	$64.1	Freeze	No	No
Arkansas	Southwestern Bell Telephone Co.	Basic	2	16.3	Freeze	No	No
Connecticut	Southern New England Telephone Co.	Basic	Indefinite	31.5	Freeze	Yes	Yes
Delaware	Bell of Pennsylvania/ Diamond State Telephone	All	2	12	Freeze	Yes	No
Florida	Southern Bell	Basic	3	67.5**	Freeze	Yes	Yes
Kentucky	South Central Bell	Basic	1	5.5	Freeze	No	Yes
Maryland	C&P Telephone of Maryland	Basic	4	0	Freeze	No	No
Nebraska	U S West Communications	All	Indefinite	0	Formula	No	No
Nevada	Centel Corp.	All	2	7.5	Freeze	No	No
New Jersey	New Jersey Bell	All	3	4	Freeze	No	No
New York	New York Telephone	All***	3	100	Freeze	No	Yes
	Rochester Telephone Corp.	All***	3	6.7	Freeze	No	Yes
Vermont	New England Telephone	All	3	0	Freeze	No	No
Virginia	C&P Telephone of Virginia	Various	Indefinite	37.5	Freeze	No	No
West Virginia	C&P Telephone of West Virginia	Basic	2	6.7	Freeze	No	Yes
Wisconsin	Wisconsin Bell	All	2	32	Freeze	Yes	Yes

*In addition to the approved programs listed above, more than 20 other states are reviewing some degree of incentive regulation as of March 1.
**First year of plan.
***Except competitive services.
Source: PSC interviews; McKinsey analysis; Regulatory Research Associates Inc.

ing) was set at a retail price index of −3%. In other words, U.K. telephone customers were guaranteed a declining real price of services. BT's profitability depended on its ability to generate new revenues and reduce costs.

In 1987 BT ran into severe service problems. A wage strike by 110,000 service technicians created an extended backlog, slowing response time. According to an Oftel report, BT's performance of fault clearance within two days slipped from a level of 80% in 1981-1982 down to 52% in 1986 and to 38% in 1987. By that time almost 25% of all U.K. pay phones also were out of order. Consumer organizations went on the attack. According to the *Financial Times*, BT became the most "loathed" organization in the U.K.

Since then, however, BT has shown marked improvement. In 1988 it reported that more than 92% of pay phones were operating and that the rate of faults cleared within two working days had risen to more than 90%. Complaints by consumers dropped by almost half in 1988, according to the Telecom Users Association.

Efforts to generate new revenue and reduce costs paid off, allowing BT to invest £2 billion ($3.38 billion) a year in digital switches and fiber optics.

BT experienced a net income gain of 44% between 1984 and 1988, compared to a 30% gain experienced by the RHC's during the same period. BT's return on equity now stands at about 18%, higher than any RHC's.

With this level of return, Oftel recently tightened the price cap a notch. When the current agreement expires in August, BT's price path will be limited to RPI −4.5%.

Oftel's agreement to a new price-cap contract clearly indicates that the agency still favors incentive regulation. And so does BT management.

"There appears to be agreement about the advantages of a price-control scheme compared with other forms of regulation," says the company's 1988 annual report. "In particular, a price-control scheme is effective in delivering real price reductions overall to customers, encourages company efficiency and is simple to administer." The BT experience seems to have turned into a win-win story.

The U.S. Challenge

With more advanced technology in place, U.S. LECs are approaching incentive regulation with greater capabilities, higher service levels and lower costs than their British counterpart. The changes accompanying incentive regulation are likely to be less revolutionary and disruptive to both LECs and their customers. So what can LECs on the other side of the Atlantic learn from this experience?

Although they cannot draw direct parallels from BT's experience, LECs can learn about the likely direction of this change. Carriers face two similar challenges in implementing incentive regulation.

First, LECs must ensure that incentive regulation creates more value than rate-of-return regulation. Second, they must ensure that both customers and shareholders receive a fair share of that value (see related story, page 30). These are practical necessities if LECs want to end up with a long-term regulatory program that maximizes shareholders' benefits and holds the cost and invasiveness of regulation to a minimum.

To create more value, LECs must lower costs and innovate faster than they would have under rate-of-return regulation, while providing good service.

With advances in technology, LECs can introduce many new services more quickly during the next few decades. The possibilities range from the simple but highly marketable caller identification feature now available to the more glamorous feature of selecting and viewing videos at will. Technology already in place—combined with the network capabilities of signaling system 7, two-wire ISDN and, eventually, broadband—makes such services possible.

Network modernization will continue to generate cost savings. Organizations also can reduce costs by further streamlining operations. For example, reducing overhead costs by 20% and main-

continued on page 30

What's in it for us?

Before an LEC can decide how aggressively to pursue incentive regulation is the approach to take, it must answer these questions:

- *What are our opportunities for creating value?*

No LEC management team yet has a completely developed vision of how it will operate differently under incentive regulation. The company needs to at least scope out improvement opportunities to get a good idea of which initial changes to pursue. It is not enough to calculate under current revenue and cost plans how well the company will operate using various incentive regulation programs. Management also should begin to formulate new objectives and plans that will get the company to the next performance level. Once options to reduce costs or increase revenues are identified, management should evaluate them as alternative strategies spanning a range of investment and risk. This evaluation should include estimates of cash flow and net present value, so that both the potential and risk to shareholders can be understood.

- *Have we thought enough about the design of the program?*

Is the incentive large enough to encourage change? Does it motivate new investment as well as cost reduction? Does the formula limit risk to acceptable levels, even under high inflation rates and recession? Finally, does the program distribute value appropriately between shareholders and customers?

- *Are we organized to track and communicate our performance?*

Is someone tracking all key costs, service and innovation parameters? Can we tell how performance relates to each customer class? As BT learned, it is essential that incentive regulation benefits all customers and that customers know it.

taining these costs 20% below where they might have been would create about $1.7 billion in net present value at an average RHC.

Quality of service is already high in the U.S. Given an incentive, LECs might find it feasible to offer even higher levels of service, such as customized service levels for individual customer segments or better coordination with other suppliers to approximate the one-stop shopping of pre-divestiture days.

The LECs have already implemented many of these changes under rate-of-return regulation. In terms of productivity, the LECs are well ahead of BT and other European operators. For example, RHC access lines per employee now average 181, a 20% improvement since 1984.

Why is incentive regulation more appealing than rate-of-return regulation? LEC management wants to provide cost-effective service. But cutting the *next* 20% of costs is much more difficult than cutting the first 20%. LECs do not have the incentive under rate of return to take on increasingly difficult cost-reduction efforts that could jeopardize employee morale, union relations or customer satisfaction. Those carriers that have gone this extra mile have been forced by regulators to refund all the savings to customers because returns climbed above allowed ranges.

In addition, the lion's share of the potential value LECs could create does not come from cost reduction. It comes from new services that require inherently risky investments in new network capabilities like switched broadband and in the critical mass of customer premises equipment needed to provide many new services.

Why should LECs make those kinds of investments with no assurance that revenues will justify them? If they succeed, the LECs, in effect, would break even. They would enjoy no increase in shareholder value because, under current regulation, returns are limited to the cost of capital. If they miscalculate demand, they could find part of their investment disallowed, causing them to destroy shareholder value.

This is not just a theoretical concern. A similar problem has plagued rate-of-return regulated electric utilities over the past decade. Many companies built new power plants, expecting continued high demand growth. When it did not materialize, regulators penalized some of them by disallowing those costs. Others are still struggling to get those plants into the rate base. And the resulting risk aversion in the industry could lead to regional power shortages in the next few years.

Value creation and incentive regulation

Value is defined as the benefits customers enjoy from services minus the cost of providing those benefits. The portion of value retained by the *customer* is equal to benefits minus price. The portion of value retained by the *local exchange carrier* is equal to the price charged for the service less the cost of producing it.

Total value is created when benefits are increased relative to costs or costs are reduced while maintaining the level of benefits. Benefits can be increased in various ways, including the addition of valued new services, increased penetration of current services, or improved levels of satisfaction among customers with current services.

Price determines how value is shared between the LEC and its customers. A higher price distributes more value to the LEC in profits, but reduces customer value; a lower price does the opposite.

In its simplest terms, the goal of regulators is to maximize customer value. The goal of LECs is to maximize the long-term value created for their shareholders while serving their customers well.

Incentive regulation is a new price-setting mechanism. To be successful it must fulfill the goals of both customers and LECs better than rate-of-return regulation. In other words, it must lead to an increase in total value creation and an equitable sharing of value among the parties.

For similar reasons, many LECs tend to be conservative about revenue-justified investments under rate-of-return regulation. Rate-of-return regulation is "a system that offers little incentive to invest in tomorrow," says Zane Barnes, chairman of Southwestern Bell Corp.

Incentive regulation, on the other hand, can motivate LECs to take the risks necessary to create additional value. If LECs are allowed to reap higher rewards and if agreements are in force long enough to allow them to recoup the cash outlays required for investment, they will be more likely to invest in new capabilities, bite the bullet on cost reductions and think more creatively about service improvements. The impact on managers will be subtle, but real. Suddenly, the game will be about management skill and aggressiveness. Conservatism may no longer be the name of the game.

The word *may* is important. Incentive regulation *may* lead to those things. But it may not. For incentive regulation to work, LECs must do what BT has done—be more efficient and innovative than they have been in the past.

If they do not, incentive regulation will fail to satisfy regulators, to say nothing of skeptics like the Consumer Federation of America. The CFA believes that incentive regulation will *not* create new value, but instead is an attempt by the industry to "deny ratepayers a fair share of the efficiency and productivity gains that have consistently driven network cost and thus the price of basic service down."

To Share and Share Alike

If BT's experience is any guide, the second challenge for carriers is to ensure that both customers and shareholders get a fair share of the value created. They can begin by designing value-sharing provisions for the incentive regulation initiatives at state levels and by influencing the FCC's price-cap program, which is still under review. Once the program is under way, they can also actively manage the sharing of value.

Through pricing policy, LECs can ensure that customers are treated fairly during an agreement's framing and execution. LECs and regulators must fashion the "price promise" so it not only provides adequate incentive, but also leads to demonstrably lower bills.

But the effort should not end

there. As an incentive program evolves, the LEC should suggest changes to the program if it does not appropriately distribute the value created across all customer classes. As BT learned, if regulators are not satisfied with how value is being shared, they can unilaterally adjust parameters such as price caps to capture more value for all customers or just for specific groups.

BT discovered, quite painfully, that service quality was an even more important aspect of value than price. A combination of circumstances that had little to do with incentive regulation unfortunately led to BT's service degradation—antiquated technology, a boom in demand among business customers and a strike. And management's focus on capturing new revenues from business customers kept BT from dealing with its problems as quickly as it should have. As a result, when service problems were at their peak, Oftel considered linking the new price caps to service performance in its next agreement. BT avoided that linkage by pledging service improvements and by offering £5 ($8.45) payments to residential customers and even larger payments to business customers for each day an order was late.

By actively ensuring that customers get their fair share, LECs can minimize the cost and diversion of an adversarial regulatory process. Wayne Allcott, U S West's director of public affairs, estimates the cost of federal and state regulation at $1 per access line per month. If extrapolated across the industry, this translates into $1.5 billion a year, a cost that incentive regulation might substantially reduce.

The Bottom Line

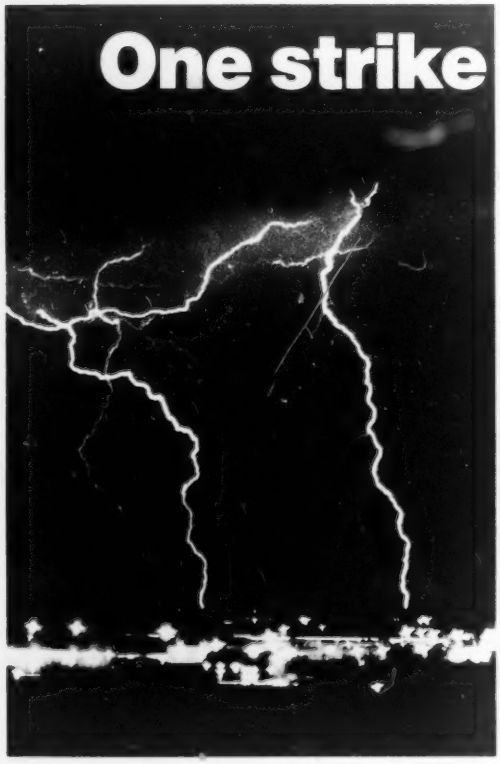
Incentive regulation is not a luxury. It is a necessity for LECs that want to continue to outperform the stock market. Most LECs are at least experimenting with incentive regulation. They must now decide whether or not to commit to changing the price-setting mechanism permanently.

It would be nice if the BT story was an unqualified success—that incentive regulation helped BT outperform U.S. telephone companies on every measure. Unfortunately, that has not happened.

Even with its flaws, the BT program has succeeded and provides a useful laboratory model. Using this model, LECs can begin to understand the nature of the role they must play. It is not enough to simply be willing participants; they must be enterprising leaders in creating and sharing value.

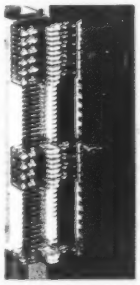
Incentive regulation has a win-win potential if approached in that spirit. It can transform the industry into a more exciting, innovative and efficient business. As William H. Springer, Ameritech's vice chairman and chief financial officer, says, "Price regulation appears to be one of those rare ideas that really does have something for everyone." T

David L. Werner is a Director of McKinsey & Co. Inc. Atlanta. Subsequent articles will examine switched broadband opportunities and unregulated ventures.



And it doesn't even have to be close to knock out your communications systems

ITW Linx protectors stop high voltage surges on phone lines before they damage electronic communications systems or interconnected computer peripherals. Simply push Linx protectors onto 66M Block terminal pairs to selectively *(and economically)* protect only those lines that need protection. Protectors are easily installed on new or existing systems and voltage response levels may be specified. Responds in nanoseconds and automatically resets to assure that service is never lost.



Every Linx protection device is performance tested and carries a lifetime guarantee to perform as described, when used in a normal and proper manner, or it will be replaced.

Business downtime is costly. Linx protectors are not!

For the complete protection story, contact the Protection Pros.

ITW Linx
Communications Products
201 Scott Street / Elk Grove Village, IL 60007 / 312-952-8844
An Illinois Tool Works Company

Circle No. 14 on Reader Service Card